

BINGER BEVARD  
 W VA & REGIONAL HISTORY COLLECTION  
 COLSON HALL - W VA UNIVERSITY  
 MORGANTOWN WV 26505

0-00  
 8782

## Conservancy sues to halt mining of Shavers Fork.

Sprawling across the banks of the Shavers Fork of the Cheat River in Randolph County is part of the

operations of Enviro-Energy, Inc., the coal firm whose No. 3 portal (out of view at the business end of the

conveyor chute at left) underwent a roof fall and now threatens to discharge acid mine water as well as

toxic metals into the Mountain State's premiere trout stream. The Conservancy has filed suit in

federal court in Clarksburg charging that the U. S. Office of Surface (Please turn to page 6)

Conservancy

## Board Meeting

Sunday, July 25 at 10 a.m.  
 at the Woodlands Institute



# THE HIGHLANDS VOICE

Library  
 West Virginia University

Published monthly by the W. Va. Highlands Conservancy

Vol. 14, No. 6 -- June-July, 1982

## ATOP THE KITTANNING

# Experiments

The assault on acid mine drainage continues with a coterie of the scientific and industrial communities.

Everything from inoculating the highlands to flooding the lowlands was examined as a possible solution to the problems of acid mine drainage during a mid-May symposium conducted in Clarksburg by the W. Va. Surface Mine Drainage Task Force.

Even as the symposium convened, that inter-disciplinary team seemed virtually assured of getting its hands on a near-million-dollar grant which — at least if the hopes of the state's chief natural resources officer are realized — will wipe out the final technological barrier stopping the full exploitation of the Mountain State's millions of tons of high- and low-grade coal reserves.

Co-sponsored by the Task Force in cooperation with the W. Va. Surface Mining and Reclamation Association, the day-long conference on acid mine drainage attracted some 150 people. Included were representatives not only of the industry but W. Va. University, the state's department of natural resources as well as a sprinkling of environmentalists.

"It is conceivable," said a December, 1981 application for an \$830,000 grant from the U.S. Office of Surface Mining, "...that coals in acid prone areas could be mined without producing perpetual acid mine drainage." In fact, the report asserts that preliminary efforts toward the development of new mining techniques have been "partially

successful." That reference is to the early work of the task force with a slightly different technical make-up but one which produced the current "state-of-the-art" mining methods.

It was those methods which were ballyhooed by both the state and industry, methods which worked virtually everywhere around the state — except in the Kittanning seam where even the recommended techniques failed with such alarming regularity that DNR director David Callaghan "restricted the granting of new permits to mines sited in the Kittanning seams in sensitive watersheds." One of the conditions for reopening these areas is for the coal companies to adequately demonstrate their ability to implement an acid abatement policy and effectively eliminate the existing acid problem.

The mine operators were "understandably concerned with regard to the mining suspension and somewhat consternated by the fact that they were following the guidelines" for mining, the application to OSM noted. Not only were the companies stymied in their attempts to enlarge what had already become a hundred-million-dollar investment, but an economically-depressed area seemed faced with a possible "cap" on its growth if not a loss of jobs.

It was just about at that point that the W. Va. Rivers Coalition, an amalgam of environmental interests,

filed their petition to have the area declared formally off-limits to mining until such time as industry could conduct mining without creating acid mine drainage. While that petition was denied, DNR's Callaghan did indicate it sparked the production of significant and helpful new information.

"...this situation is not unique to this area, for that matter, to the state of West Virginia," the OSM grant application notes. "Many other regions within the bituminous coal field of Appalachia face the same problem and the conflict between providing a substantial economic base, recovering a much needed energy supply while minimizing the environmental impact, has yet to be resolved. The solution to the problem currently existing in the Kittanning seams of West Virginia will have regional, and potentially national, implications."

With that as a background, an 11-member, blue-ribbon panel of half-a-dozen scientists plus the DNR and the coal industry began their efforts in the summer of 1981, efforts which resulted in the formal grant application in December, its virtual approval last month, plus the conduct of public hearings — and the mid-May symposium in Clarksburg.

Following opening remarks by Callaghan, University of South

(Please turn to page 4)

## CLARKSBURG

# Quote

Changes in the federal surface mine law to permit mountaintop removal would benefit West Virginia

inasmuch as "the mountains will not all be so steep." — U. S. Interior Secretary James Watt at a June 4 press conference.

## ELKINS

# Honors

A Mountain State environmentalist is lauded by Gulf Oil.

West Virginia environmentalist Rick Webb of Elkins was recognized as one of America's top 500 environmentalists of the last third-of-a-century during May when he was honored as one of the nation's 21 top conservationists for 1982 by the Gulf Oil Company. The honor, accorded him in May during a dinner reception in Washington, D.C., included a bronze plaque, a certificate as well as a \$500 honorarium.

Webb's award was one of 20 presented to ten professional and ten citizen winners for "dedicated service in the field of renewable natural resources," a Gulf Oil spokesman said. The company's chairman, James E. Lee, termed them as symbolic of "the very best in our society ... They are the unsung conservation heroes and heroines who set an example for all of us in their battle for a bet-

ter and more livable environment." The winners represented 15 states from across the nation. Webb, along with the others, was flown to Washington for the awards ceremony. States with two winners included Arizona, Minnesota, North Carolina, Virginia and Texas while West Virginia, Alabama, California, Florida, Hawaii, Louisiana, Maine, Maryland, Michigan and Wisconsin each sported one.

Webb, Gulf noted, "has become of the leading conservationists in West Virginia, having founded a group called Mountain Stream Monitors to provide systematic water quality monitoring in eight counties to measure adverse environmental impacts. He gained the distinction of being sued for libel by a coal company

(Please turn to page 6)

**BOARD OF DIRECTORS**

President: Jeanetta Petras; P.O. Box 506, Fairmont, WV 26554 (534-5595)  
 Secretary: Lois Rosier; 633 West Virginia Ave.; Morgantown, WV 26505 (296-5158)  
 Treasurer: David Elkinton; P.O. Box 506, Fairmont, WV 26554 (296-0565)  
 Membership Secretary: Linda Elkinton; P.O. Box 506, Fairmont, WV 26554 (296-0565)  
 Past President: Joe Rieffenberger; Rt. 1, Box 253; Elkins, WV 26241 (636-4559)

**REGIONAL VICE-PRESIDENTS**

HIGHLANDS: George Warrick; 1709 South Davis Ave.; Elkins, WV 26241 (636-5896)  
 PITTSBURGH: Jean Rodman; 32 Crystal Drive; Oakmont, PA. 15139 (412-828-8963)  
 CHARLESTON: Perry Bryant; 16 Arlington Ct.; Charleston, WV 25231 (343-3175)  
 WASHINGTON, D. C.: Stark Biddle; 2538 44th St. NW; Washington, D. C. 20007 (202-338-6295)

**DIRECTORS-AT-LARGE**

(Terms Expire January of 1983)

Larry George; 3557 Collins Ferry Road; Morgantown, WV 26505 (599-2855 or 736-1325)  
 William P. McNeel; 1118 Second Ave.; Marlinton, WV 24954 (799-4369)  
 Steve Bradley; 724 Snider Street; Morgantown, WV 26505 (296-0451)  
 Kate Long; 101 Ruffner; Charleston, WV 25311 (343-1884)  
 Jim McNeeley; 100 Haven Drive; Princeton, WV 24740 (Home 425-1295 or 425-9838)

**DIRECTORS-AT-LARGE**

(Terms Expire January of 1984)

Geoff Green; Rt. 1, Box 79-A; Burlington, WV 26710  
 Sayre Rodman; 32 Crystal Drive; Oakmont, Pa. 15139 (412-828-8963)  
 Skip Deegans; 102 North Court St.; Lewisburg, WV 24901  
 John Purbaugh; Rt. 1, Box 107; Kenna, WV 25248  
 Bardwell Montgomery; 512 Kanawha Blvd. W.; Charleston, WV 25302 (344-1997)

**COMMITTEE CHAIRS**

MINING Committee: John Purbaugh; Kenna, WV  
 SHAVERS FORK Subcommittee: Bardwell Montgomery; 512 Kanawha Blvd. W., Charleston, WV 25302 (344-1997)  
 CANAAN VALLEY Committee: Steve Bradley; 724 Snider St., Morgantown, WV 26505 (296-0451)  
 CRANBERRY BACKCOUNTRY Committee: Larry George; 9 Crestride Drive; Huntington, WV 26705 (763-1325)  
 SCENIC AREAS Committee: Sayre Rodman; 32 Crystal Drive; Oakmont, Pa. 15139 (412-828-8963)  
 RIVERS Committee: Perry Bryant; 16 Arlington Ct.; Charleston, WV 25231 (343-3175)  
 HIGHWAYS Committee: Geoff Green; Rt. 1, Box 79-A; Burlington, WV 26710  
 'ADOPT-AN-AREA' Committee: George Warrick; 1709 South Davis Ave.; Elkins, WV 26241 (636-5896)  
 ACID RAIN Committee: Don Gasper (924-6211)

**ORGANIZATIONAL DIRECTORS**

KANAWHA TRAIL CLUB: Charles Carlson; Box 131; Charleston, WV 25231 (925-7264)  
 NATIONAL SPELEOLOGICAL SOCIETY, Virginia Region: Jerry Kyle; Rt. 1, Box 231; Alderson, WV 24910 (455-7897)  
 BROOKS BIRD CLUB: Chuck Conrad; RD 1; Triadelphia, WV 26059 (547-1053)  
 NATURE CONSERVANCY: Max Smith; Rt. 2, Box 154; Grafton, WV 26354 (265-4237)  
 SIERRA CLUB, Potomac Chapter: Kathy Gregg; 30 Reger Ave.; Buckhannon, WV 26201 (472-3812)  
 POTOMAC APPALACHIAN TRAIL CLUB: Jeanette Fitzwilliams; 15 Maple St.; Alexandria, Va. 22301 (703-548-7490)  
 PITTSBURGH CLIMBERS: Sayre Rodman; 32 Crystal Drive; Oakmont, Pa. 15139 (412-828-8963)  
 W. VA. SCENIC TRAILS ASSOCIATION: George Rosier; P.O. Box 2126; Morgantown, WV 26505 (296-8334)  
 GEORGE M. SUTTON AUDUBON SOCIETY: George H. Warrick; 1709 South Davis Ave.; Elkins, WV 26241 (636-5896)  
 CANAAN VALLEY ALLIANCE: Steve Bradley; 724 Snider St., Morgantown, WV 26505 (296-0451)

**VOICE EDITOR**

Paul Frank P.O. Box 1121, Elkins, WV 26241 (636-1622)

**WINDS OF CHANGE**

(Continued from page 8)

Co., the Merkhams Energy Development Co., General Electric Co., Westinghouse Corp., and WTG Energy Systems Inc. U.S. Windpower also manufactures turbines.

All of the machines produced by these companies remain basically experimental models, however, and a significant amount of performance experience is required before they can be considered for production in quantity.

"We need to continue our well-paced research program with logically achievable milestones to get us from where we are now to the point we have wide scale usage of wind power," said Dr. Frank R. Goodman, EPRI's project manager for wind power systems. "It's a matter of not promising too much too soon or trying to rush the technology so fast a failure occurs where someone gets hurt, or some other calamity happens to give the program a black eye."

In recent months, two failures have indeed occurred, but neither has been calamitous.

At Southern California Edison's San Geronimo Pass site, a 500 KW vertical axis machine, manufactured by the Aluminum Company of America, experienced a control malfunction and fell apart. And at Goodnoe Hills, a MOD-2 being kept on line as much as possible to determine its maximum energy yield burned out its generator during an emergency shutdown when its blades did not feather properly. The MOD-2s are built by Boeing and are being tested in a joint Boeing, DOE, NASA, and Bonneville Power Administration venture.

"All of this is part of the learning process," Goodman said. "It's almost to be expected, and it's certainly no reason to abandon hope."

At EPRI, Goodman and others are managing numerous programs to keep abreast of both public and private development efforts, to augment them, and to help utilities predict and evaluate the overall impact of integrating wind into their systems.

For the future, the federal wind energy program, the wellspring for most development in the field, is faced with absorbing substantive budget cuts. DOE's FY 81 wind budget, which expires in September, has been trimmed \$26.1 million to \$59.7 million, requiring renegotiation of some existing contracts and cancellation of others. The FY 82 wind allocation is proposed at \$19.4 million, down from a Carter Administration proposed \$80 million.

"This means restructuring the program," Ancona said, "and we're now in the process of doing just that. We hope to continue some of the testing already underway, the MOD-2 in particular, but the MOD-6 has been indefinitely deferred, and the MOD-5 will have to end unless Congress reinstates some funding for some sort of cost sharing with industry."

"The Highlands VOICE" (ISSN 0161-9896) is published monthly by the W. Va. Highlands Conservancy, P.O. Box, Fairmont, WV 26554. Distribution is to Conservancy members. Main editorial offices are located at No. 7 Kerens Hill, Elkins, WV 26241. A re-entry permit to mail at second-class postage rates is pending at Elkins, WV. Main entry is at Fairmont, WV. POSTMASTERS should address Forms 3579 to P.O. Box 506, Fairmont, WV 26554.

MOD-6 is envisioned as an intermediate size machine, while MOD-5 represents the planned next-generation of DOE/NASA large horizontal axis machines (no MOD-3 or -4 designations will be used). According to recently completed conceptual design studies, conducted independently by Boeing and General Electric, the MOD-5s could produce electricity at 3 cents a KWH (in 1981 dollars). Both studies rates these machines much larger than those now in operation: at 6 to 7 MW and with blade spans of 400 feet or more.

DOE expects that private industry will continue development efforts on its own as federal dollars are cut back, and for itself sees a shift away from systems development and more toward research on long-range, high-risk and high-potential technical problems.



**MOVING?**  
**ATTACH OLD LABEL HERE**

New Address: \_\_\_\_\_

W. Va. Highlands Conservancy  
 P.O. Box 506  
 Fairmont, WV 26554

SEND TO:

**Join THE W. VA. HIGHLANDS CONSERVANCY**

Description of membership categories.  
 Individual membership:  
 Regular—\$10 from the rank and file who can give time and interest to the conservancy.  
 Associate—\$20 from those who can afford a small extra gift in addition to their interest in West Virginia's outdoors.  
 Sustaining—\$50 from those able and willing to give larger amounts necessary to underwrite our programs.  
 Senior—\$8 from conservationists over 65 years of age.

Organizational membership:  
 Regular—\$20 from a small organization anxious to help the Conservancy score conservation gains in the Mountain State.  
 Associate—\$30 from a larger organization whose membership approves the efforts of the Conservancy.  
 Sustaining—\$60 from a large national organization which appreciates the importance of a highlands area to the people of the eastern seaboard.

New       Renewal

Name .....

Address .....

City ..... State ..... Zip .....

Organization you represent(if any) .....

Membership category (see descriptions opposite)

Individual	Organizational
<input type="checkbox"/> \$10 Regular	<input type="checkbox"/> \$20 Regular
<input type="checkbox"/> \$20 Associate	<input type="checkbox"/> \$30 Associate
<input type="checkbox"/> \$50 Sustaining	<input type="checkbox"/> \$60 Sustaining
<input type="checkbox"/> \$ 8 Senior	

Brief statement of present position, interest, or activities in conservation activities (optional) .....

Make checks payable to The West Virginia Highlands Conservancy.

THE APPALACHIAN HIGHLANDS

# Naturalization

An Appalachian Trail enthusiast suggests letting the gypsy moth seek its own balance with nature.

**EDITOR'S NOTE:** The following editorial is reprinted from THE REGISTER, a publication of the Appalachian Trail Conference.

passing hikers a steady drizzle of leaf fragments and excreta. The hot summer sun will beat unhindered on the Trail and its users. The hiking experience will be most unpleasant for a time.

What should we as Trail managers try to do to mitigate the effects of this imported pest? The answer is that probably the best thing we can do to control the gypsy moth is *nothing at all*. Patience is what is called for, and patience will be very hard to muster in a naked forest on the Fourth of July. But the gypsy moth is here to stay; no one with any experience in these matters believes that it can ever again be eradicated from this continent. The sooner it becomes "naturalized" in our woods, with its own coterie of parasites and predators, the sooner it will be reduced to the level of another routine insect nuisance.

Spraying of various pesticides, however benign they may allegedly be, only delays the final naturalization of the beast; and naturalization can be ultimately the only solution. The one uncertainty is how long the process will take. In my opinion it is far preferable to put up with a few years of temporary unpleasantness and let the whole problem settle down permanently than to fight a delaying action which we cannot win and which will only drag the problem out, possibly for decades more.

Certainly some trees will be lost. Although far fewer than is popularly supposed. Some studies have shown that, over all, about seven percent of healthy trees die after a single total defoliation. After two successive years of total defoliation the mortality rate rises to 22 percent. More than two successive years of total gypsy moth defoliation, however, are quite rare, since by then the population in an area will usually collapse.

## GYPSY WHO?

The gypsy moth is an Old World forest pest which was introduced into this country in 1869 by an eccentric French experimenter who thought he could cross them with silkworms to produce a superior quality silk. This bizarre venture failed, but the gypsy moth succeeded. A few of the insects escaped from captivity, found food to their liking, and have been spreading ever since.

The gypsy moth passes through only one complete life cycle each year. In late April or early May, the previous year's eggs hatch. Tiny larvae appear and slowly grow into the destructive, tree-stripping caterpillars that do all the damage. Late in June or early July the mature caterpillars, now 1½ to 2½ inches long and colorfully ornamented with spirals of red and blue dots along their backs, pupate and enter the cocoon stage. In about two weeks they emerge as moths — white, flightless females, two inches across; and small, brownish males that fly about, looking for females.

The moths do no feeding and live only long enough to mate and for females to lay the eggs that will carry the species through the winter. Eggs are laid on virtually any outdoor surface and are in tannish, thumbprint-size masses, each of which generally contains several hundred eggs.

The mix of species in the forest also changes, resulting usually in a lower percentage of oak. It is thought, however, that as the number of oaks

in an area declines, there is a tendency for the gypsy moth population to stabilize.

The natural forces at work in the

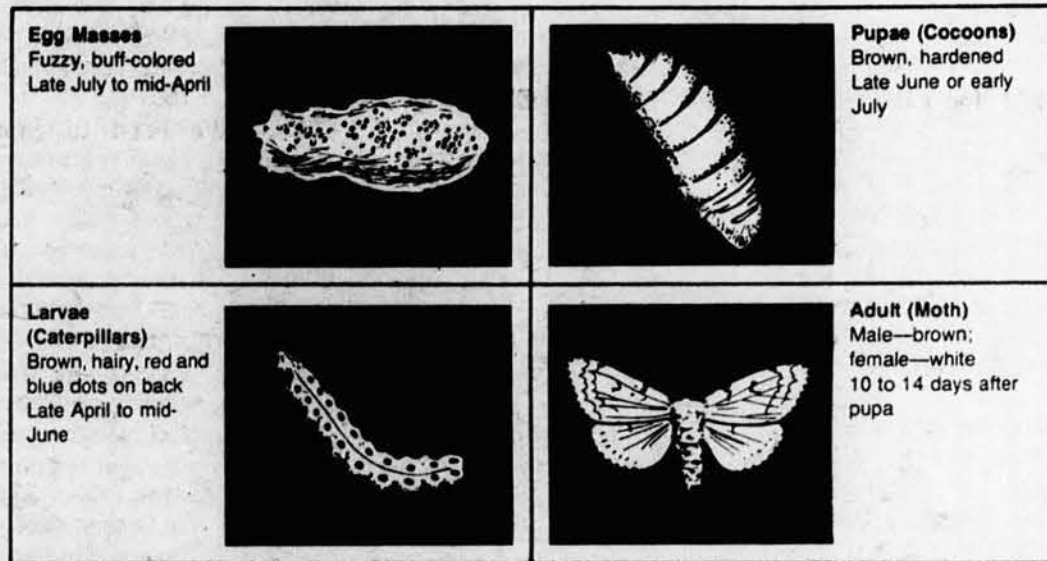
forest system will strike a balance eventually. The less we interfere, the sooner that will happen.

—Maurice Forrester

At about the same time that this issue of THE REGISTER is reaching your mailbox, a generative event with ominous implications is occurring all along the northern portion of the Trail. From some poorly defined point in northern Virginia all the way to Maine, the eggs of *Lymantria dispar* have recently hatched, are in the process of hatching, or soon will hatch — depending on where your mailbox lives.

Emerging from those eggs will be tiny larvae which over the next several weeks will grow — by stages known as instars — into the colorfully ornamented but voracious creature that goes by the common name of gypsy moth caterpillar. Where the population is large enough, they will devour nearly every leaf available. At lower population levels they will be more selective, choosing certain species over others, with oaks being the favorite.

By the end of June there are bound to be stretches along the Trail where the trees are as bare as in January, and where the relentless grazing of the caterpillar drops on the heads of



Can natural enemies of the gypsy moth control outbreaks of that insect in the Northeast? Researchers are looking for some of the answers in the Far East. On May 11, a team of U.S. scientists departed for the People's Republic of China to collect parasites, predators, and viruses and other microorganisms of the gypsy moth for evaluation and testing in this country. "We also hope to return with gypsy moth at various stages of its life cycle for use in behavioral and other studies," said William E. Wallner, a research entomologist who is representing the USDA Forest Service's Northeastern Forest Experiment Station on the 2-month-long mission.

"Virtually nothing is known about the natural enemies of the gypsy moth in the People's Republic," said Wallner, who added that recent work by the Station's Forest Insect and Disease Laboratory at Hamden, Connecticut, and at Yale University suggests that mainland China may be the

country of origin of the gypsy moth.

In exploring ways of managing gypsy moth populations, researchers at the Forest Insect and Disease Laboratory have focused their attention on the use of biological control agents, including the bacterial pathogen *Bacillus thuringiensis* (Bt). Scientists there recently developed and are field testing new strains of Bt that are up to 20 times more potent against gypsy moth larvae than earlier formulations.

Research continues on the development and testing of new formulations of Gypchek, a biological insecticide that was developed at the Hamden facility and registered with the Environmental Protection Agency. Gypchek, which is not commercially available, is prepared from gypsy moth larvae that have been killed by the nucleopolyhedrosis virus (NPV), which affects only that insect. Scientists hope to extend the active life of the NPV virus and to increase its effectiveness under a variety of field

conditions.

Other control measures being investigated include releasing into infested areas parasitic wasps and flies and laboratory-reared male gypsy moths which have been sterilized by irradiation; providing areas of protection for small mammals and other organisms that prey on the gypsy moth; and using a growth regulating hormone that prevents the insect from molting.

In 1981, nearly 13 million acres of hardwood forest were defoliated by the gypsy moth in the northeastern United States, compared with 5.1 million acres in 1980. Areas of general infestation include all of Vermont, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, and Pennsylvania, as well as southern Maine, most of Delaware, and Maryland. The gypsy moth is spreading into northern Virginia and West Virginia and into eastern Ohio at a rate of 10 miles a year.

## TRAILERS

The "First Annual 2,000-Miler Gathering" — a convocation of Appalachian Trail enthusiasts who have hiked its 2,000-mile length at least once — has been slated for Oct. 8 to 11 in West Virginia at the Appalachian South Folklife Center in Pipestem and nearby Concord College.

Warren Doyle, who headed several University of Connecticut through-hikes of the Trail, is coordinating the event.

Opportunities will include day hiking and canoeing as well as evening entertainments of slide shows, mountain music and "mud-sliding," according to Doyle. Further information is available from him at the Appalachian Folklife Center at P.O. Box C in Pipestem, WV 25979.

## AUDUBONNERS

"Audubon in Action," the Mid-Atlantic Regional Conference of the National Audubon Society, has been slated for Winchester, Va.'s Shenandoah College later this month, June 25-27, a Friday, Saturday and Sunday.

The conference convenes Friday afternoon with registration and an "early bird" workshop on workshops, then continues through the weekend with a host of national and regional NAS representatives. Topics will include education, land and water, national forests, mining, wilderness, wildlife and refuges, clear air and energy—and more. Lodging is available, with the total cost for the weekend ranging from \$45.25 per person downward.

Registration should be made through the NAS's Mid-Atlantic Regional Office at 3514 Trindle Road in Camp Hill, PA 17011.

## MORGANTOWN

# Wilderness

Academia plans an early-July probe of a uniquely American ethic.

An array of the nation's leading academic experts on wilderness and its use will converge for a two-day conference and series of six panel discussions July 8 and 9 at W.Va. University under the co-sponsorship of the university's division of forestry as well as the Society of American Foresters.

The occasion is the second annual meeting of the Wilderness Psychology Group, and according to assistant professor of forestry research Franklin E. Boteler who is serving as coordinator of the event, "many of the nation's leading researchers will be presenting papers concerning a wide range of wilderness-related topics. By organizing speakers into panels and allowing ample discussion time, we hope to encourage an exchange between all conference participants," Boteler noted.

Registration for the conference is due June 18 and includes \$20 plus optional costs for housing and meals for the two days in university facilities. The panels include:

—technology transfer and wilderness management with discussion of "Wilderness encounters of the third kind: the computer hikes the Appalachian Trail," "The effect of management decisions on hiking trail use patterns," "Manager's perceptions of overuse in eastern wilderness and implications for technology transfer," "A futuristic model for wilderness management," and "Technology transfer within federal bureaucracies."

—wilderness and crowding with discussions of "Are these trail facilities crowded? The Green Mountain question," "Psychological dimensions and functions of wilderness solitude," and "Some reflections on wilderness solitude."

—wilderness and health with discussions of "Wilderness vision quest," "An outdoor-challenge experience and the affective development of college students," "How effective is wilderness therapy?" "Revitalizing the human spirit, North American Style: a comparison of

wilderness and city experience."

—evolution of wilderness values with discussions of "Values gone wild," "George Perkins Marsh, Verplanck Colvin and the beginning of the American wilderness aesthetic," "Exploring the value of wilderness in the college classroom,"

—definitions and perceptions of wilderness with discussions of "Image specialization: a tool of wilderness management," "What people mean by wilderness: an exploratory look at word association," and "Definitional perceptions of 'wilderness' and perceived satisfactions from wilderness: a survey of college students."

—psychological scales and environmental perceptions with discussions of "Androgyny, barrier score and locus of control," "The influence of social and environmental expectations on wilderness satisfaction," and "Ecological knowledge and attitudes of pro- and anti-uranium mining groups."

# Experiments

(Continued from page 1)

Carolina geology professor Dr. Frank T. Carruccio defined "the role of the acid mine drainage technical advisory committee in advancing West Virginia's coal industry." His brief review of the problems included an assertion that both the scientific and industrial communities have recognized the effort as "one of the major and significant efforts toward solving the acid mine drainage problem that has been organized within the last 20 years. The successful completion of the Committee's objectives," he said, "will not only lead toward the alleviation of current acid problems but will permit the mining of coals with a minimum environmental impact and maximum economic return."

Among those directly involved with the project are:

—Dr. John Sencindiver of the plant and soil sciences division of the W. Va. University's college of agriculture and forestry. He has devised a three-year study designed to evaluate the effects of mining on the properties of topsoil; to evaluate the use of alternative "topsoil" materials which might make a better final covering than the original topsoil, and to evaluate the effect of surface or near-surface sealants on soil properties and plant growth.

Sencindiver noted that proposals to seal mine sites with plastic sheeting — while they "show promise for reducing infiltration of water into a backfill thus reducing seepage and acid mine drainage" — have yet to be evaluated for their effects on water movement and other properties of soil covering the sheeting.

—Dr. Robert Kleinman, the supervisor of the U.S. Bureau of Mines' acid mine drainage research section in Pittsburgh. In addition to his own work, he noted that his agency is involved in an independent but related study of 30 mine sites, comparing predicted acid potential to actual acid production in an attempt to determine which factors are significant and which are not.

But Kleinman's work for the committee has been more like that of a bacteriologist: as of mid-May, he had supervised the spraying of a

detergent-like substance (lauryl sulfate in solution) on two small sites, one near Kingwood in Preston County another near Beckley in Raleigh County in an attempt to knock out bacteria which are responsible for the production of especially severe acid seeps.

It works.

In fact, months of dramatically improved water quality have been recorded. At both sites, iron levels plummeted from 1,000 mg/l to less than 2 mg/l while acidity was reduced by a third at one site and by 75% at the other. Dr. Kleinman said he expected to be able to conduct much more extensive field tests during this summer, spraying the "bugs" (*Thiobacillus ferrooxidans*) by hydroseeder.

—Dr. A.H. Stiller of W. Va. University's department of chemical engineering. He is working with the successful laboratory theory that the use of phosphate can "lock up" the iron which is essential to the various chemical reactions which are necessary for the production of acid mine drainage. Though actual use in the field might be expensive, Dr. Stiller suggests that "the cost of treatment of acid mine drainage producing overburdens would be greatly reduced" if sewage sludge were used instead. Phosphate similar to that used in the successful laboratory tests, he noted, is frequently created during sewage treatment.

—Dr. Jack Renton of W. Va. University and the W. Va. Geological Survey. He is developing a more precise definition of the various rock strata which influence the production of acid mine drainage.

—Dr. Gwendelyn Geidel of the geology department at the University of South Carolina and an associate of Dr. Carruccio. She is developing a more precise picture of how water flows into and through a backfilled area. With the use of "tracers," she will attempt to plot out the specific paths of rainwater and groundwater as they infiltrate the backfill, then later leave the area as seeps. She predicts that her study "should provide the necessary information on the movement of water through the backfill to predict the water quality from a surface mine backfill"

Others on the agenda for the day included W. Va. Surface Mining and Reclamation Association president Ben Greene who discussed the action of the legislature in the last session, and Island Creek Coal Company's Al Meek who described the many different approaches now being used by his company to test the effectiveness of detergents; using additional amounts of lime and other techniques in both gob impoundments as well as the continuing surface mining operations. He also noted that the company has set aside a dozen 2,500-square-foot plots in which selective placements of rock layers will be used as experimental "leaching columns" to produce a variety of water samples.

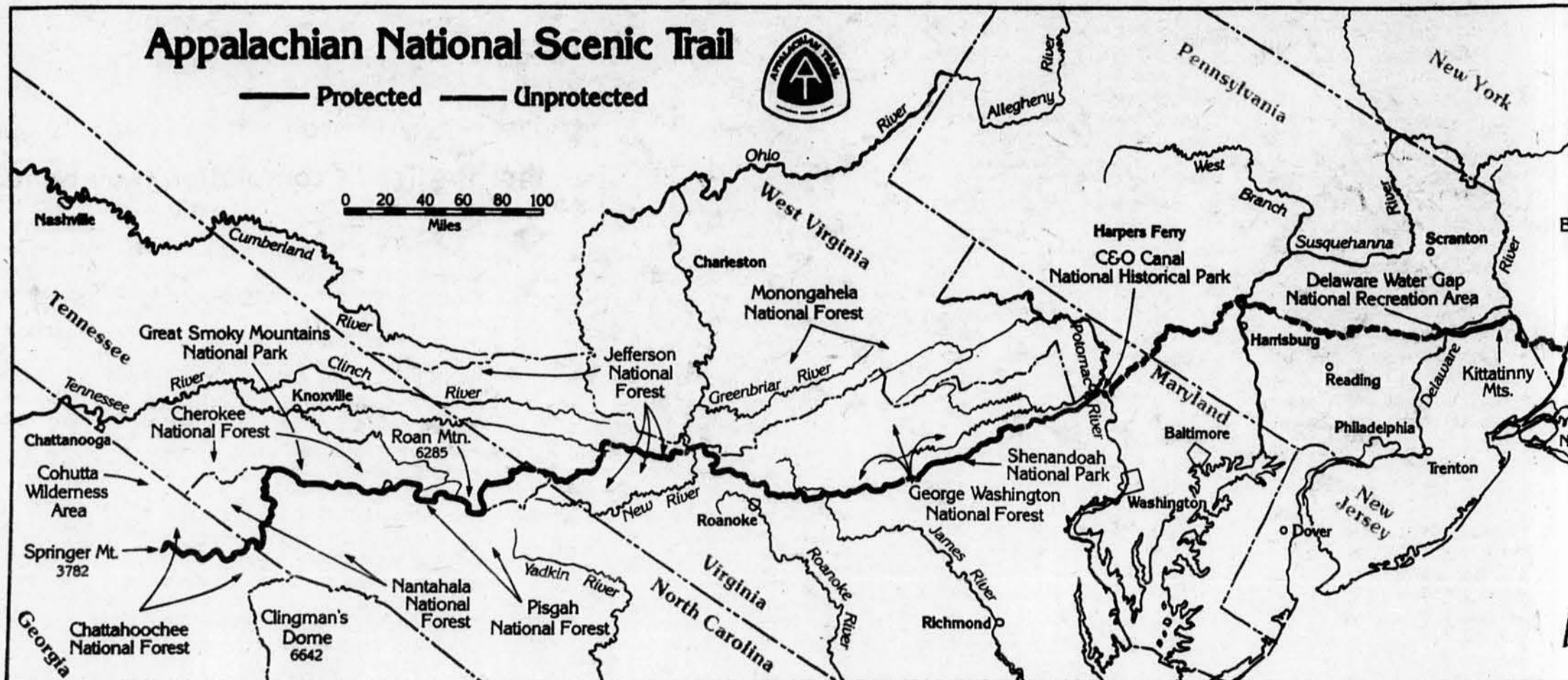
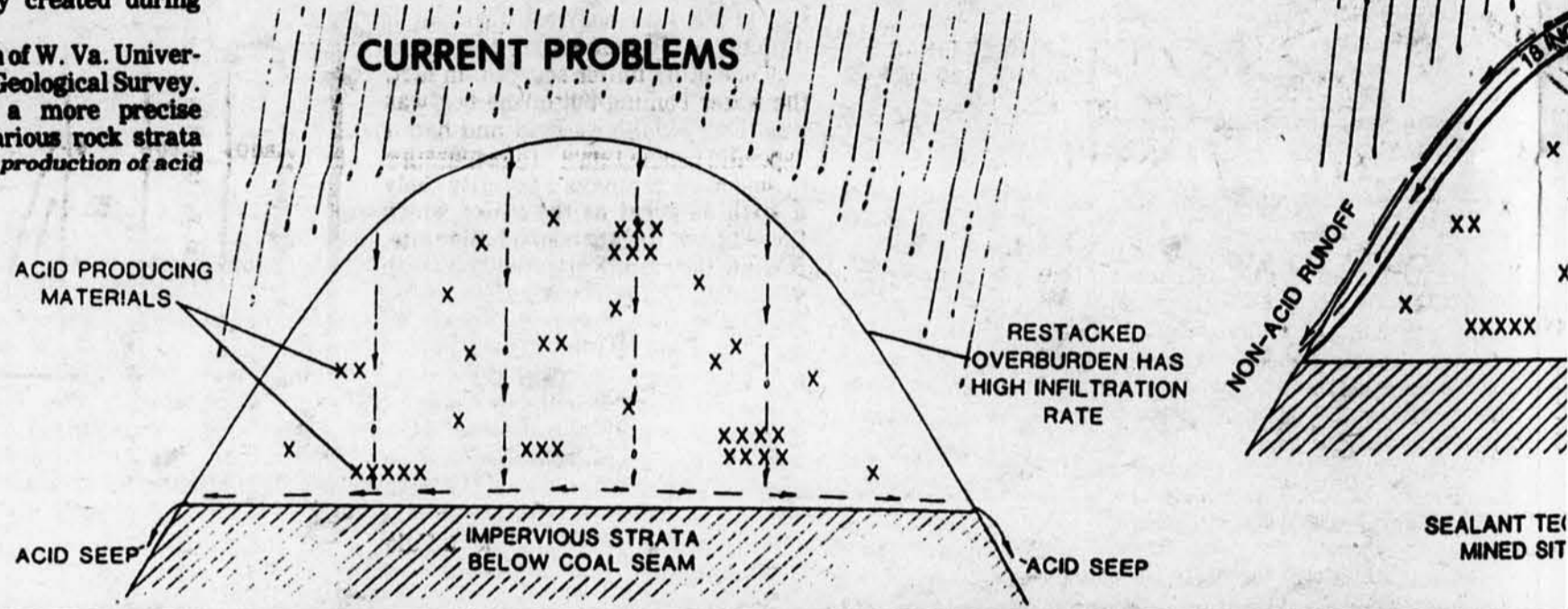
Also appearing was Edward Force

of Commonwealth Technology in Kentucky. He displayed slides of DLM Coal Company's operations where large plastic sheeting is being used as a sealant for toxic materials being buried in backfills. Commonwealth Technology has been working with DLM since late 1980, and they are currently engaged in tests of plastic (20 mils thick) sheeting covering a 52-acre site near Alton where changes in the flows from acid seeps are being monitored twice monthly. The results (shown here) are as yet inconclusive — though the gallons-per-day flows, the acid loading and iron concentration figures certainly demonstrate the severity of the problem. Potential future applications of sealant technology were also discussed.

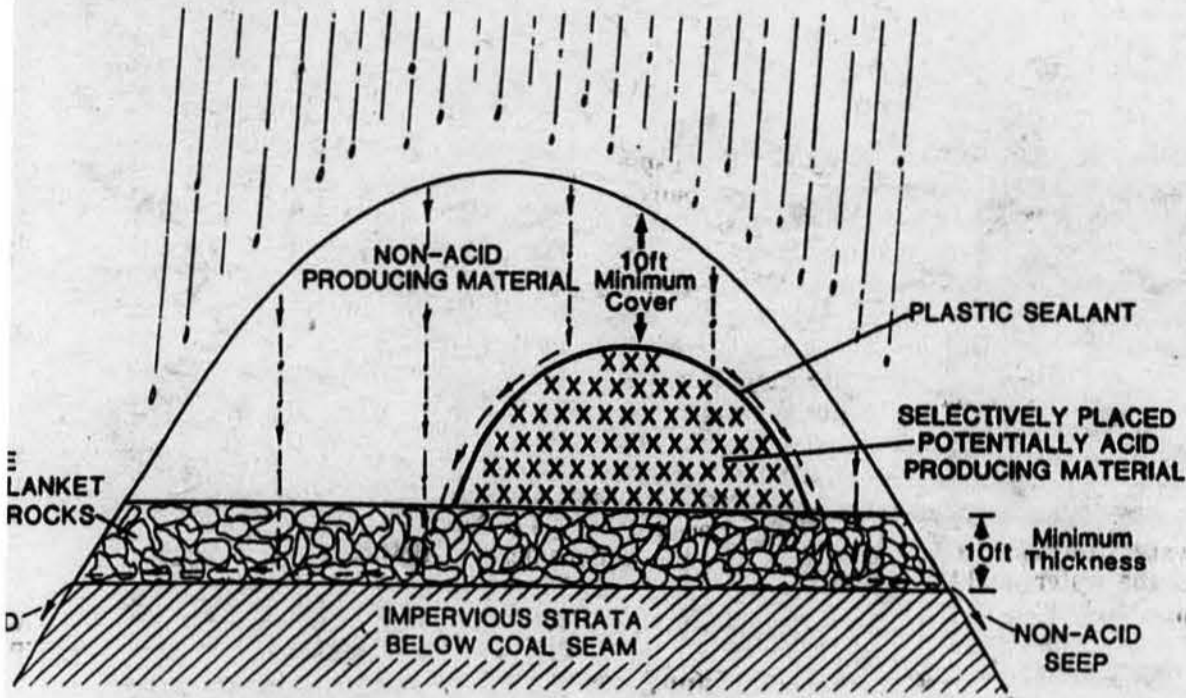
But certainly one of the most intriguing presentations came from a pair of W. Va. University biologists, R. Kelman Wieder and Gerald E. Land — neither a member of the task force — who gave a guest presentation of a paper that was incorporated a week later in the proceedings of a "Symposium on Wetlands of the Unglaciated Appalachian Region" published by the University Press at Morgantown.

In that somewhat startling paper, the two scientists set forth convincing evidence that showed that certain kinds of bogs can effectively halt acid

mine drainage "naturally" by precipitating the sulfur back into the bog. In particular, the precipitation was drawn to Tub

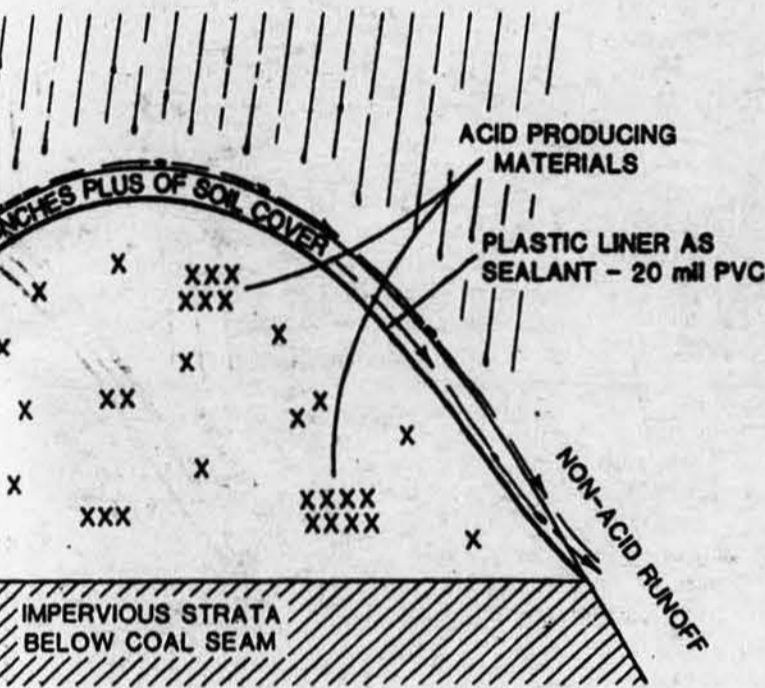


Credit: The Living Wilderness, published by The Wilderness Society, Washington, D.C.



POST MINING CONDITIONS UTILIZING SEALANT TECHNOLOGY, SELECTIVE HANDLING AND RESTACKING OF BOTH ACID AND NON-ACID PRODUCING OVERBURDEN

PROPOSED SOLUTIONS



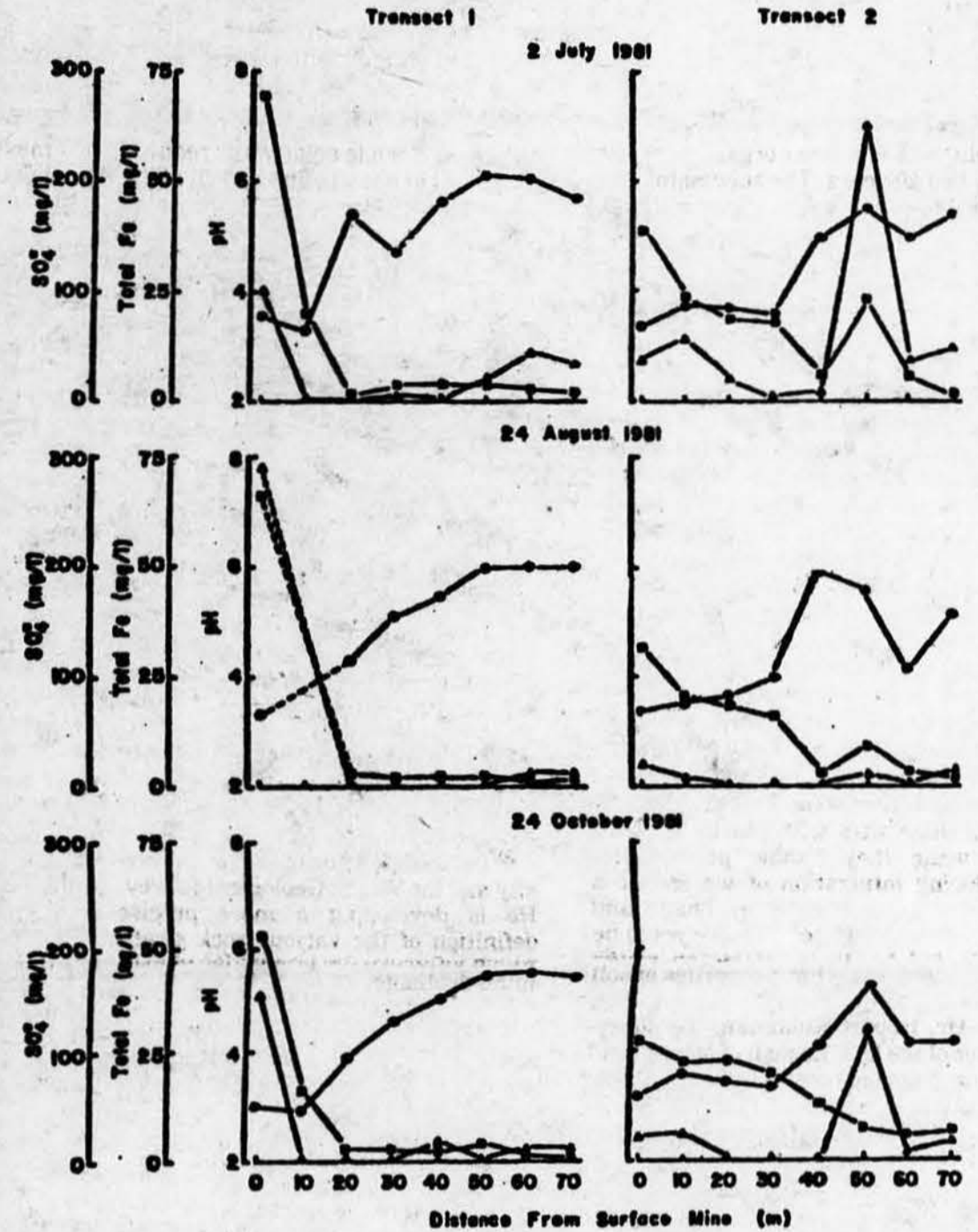
TECHNOLOGY APPLIED TO PREVIOUSLY ABANDONED MINE SITE WITH RANDOMLY RESTACKED OVERBURDEN

where, they said, "three lines of evidence . . . suggest (it) is effectively ameliorating the quality of the acid mine drainage as it percolates through the wetlands." They noted that water quality improved as it passed through the bog; that hydrogen sulfide concentrations in the water indicated that the sulfur was being removed from the acid mine drainage; and that the "chemistry of stream water draining from other nearby watersheds" closely matched that of the drainage from Tub Run — despite the fact that highly acid water was one of its major sources. In fact, the water coming out of the bog was less than a tenth as acid and had a "specific conductance" (one measure of acid mine drainage's severity) only a sixth as great as the water which flowed from the abandoned mine site.

While the results are tentative, both Wieder and Land are clearly hopeful. Further studies, they note, are planned, and "if the results of these studies are also favorable, then the use of either previously existing or artificial freshwater wetlands could provide a low-cost, low-maintenance method for treating acid mine drainage."

Bogged Down

Changes in pH (●), sulfate (■) and iron (▲) at Tub Run bog.



HARPERS FERRY

Trailing Funds

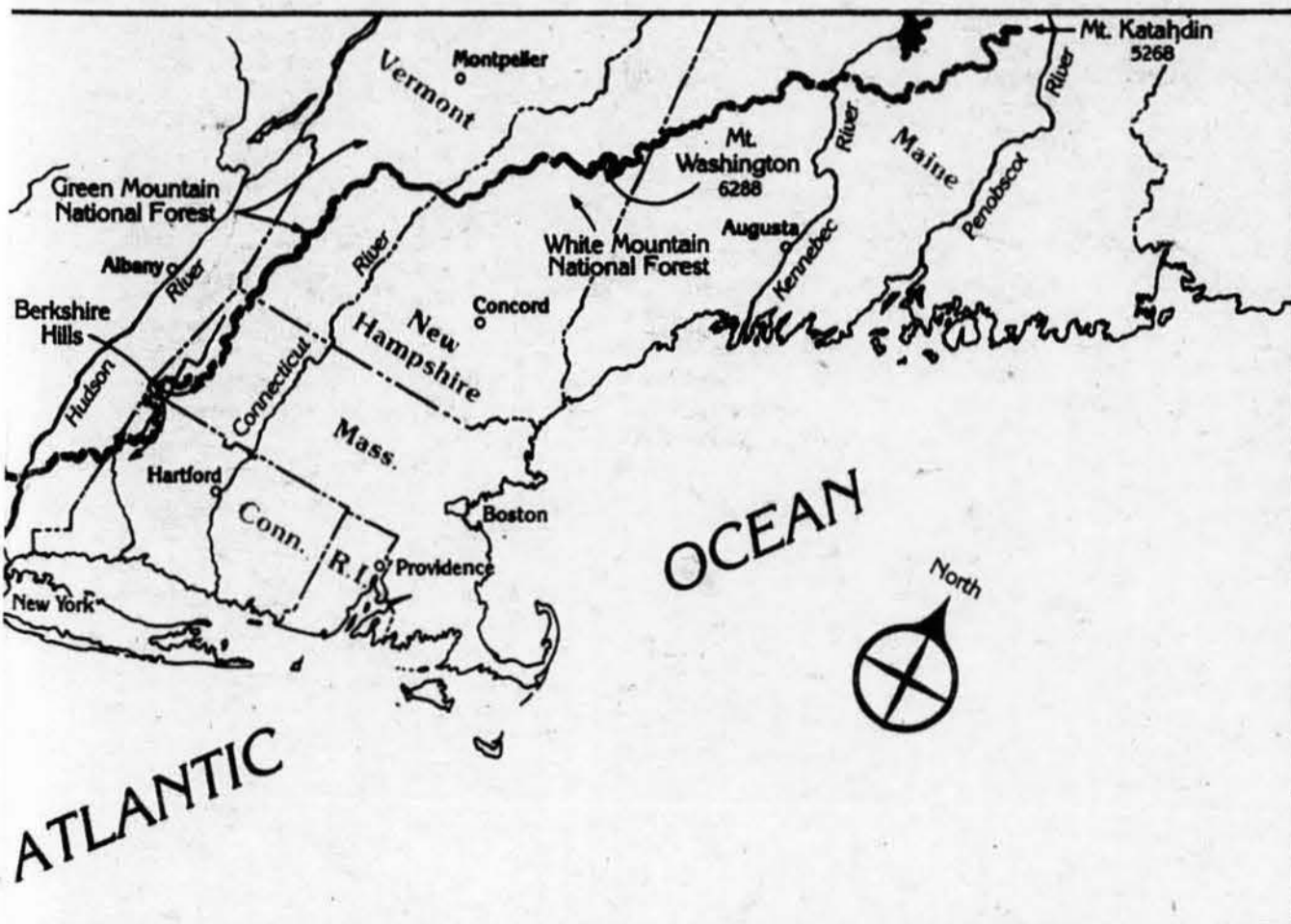
Appalachian Trail enthusiasts fear funding is so low that the Trail's completion may be jeopardized

For the second year in a row, the Reagan Administration has proposed essentially zero funding for land acquisition along the Appalachian Trail by the U. S. Department of Agriculture's Forest Service and the National Park Service, according to the lead article in the April issue of *The Register*, a publication of the Appalachian Trail Conference.

Specifically, the newsletter noted, the new federal budget for fiscal year '83 includes a request of approximately \$69 million for federal land acquisition for outdoor recreation projects, but all of these funds are intended for "deficiencies," or anticipated court awards for existing condemnation cases, and for "emergency acquisitions" — no fun-

ding is indicated for new acquisitions for national park or forest projects.

The proposal is similar to the FY '82 budget request in which the Administration recommended a moratorium on federal land acquisition and a total of only \$45 million in new funding. The FY '82 budget was ultimately amended by the Congress to include an appropriation of approximately \$150 million, but many federal projects received only a fraction of the necessary funding levels. The Appalachian Trail project, for example, received less than \$5 million in FY '82 appropriations, rather than the \$20 million requested by the previous Administration and by the ATC.



# Conservancy Sues

(Continued from page 1)

Mining has suppressed a staff report which outlines the problems of the No. 3 portal. The evidence, the Conservancy contends, is summarized in a report prepared by OSM's technical staff and, while it has been provided to Enviro-Energy, has been withheld from the public.

In February of this year, OSM's deputy regional director wrote to

Enviro that disapproval of the Enviro's No. 3 permit was imminent, with a decision to be reached on the other permits which Enviro still has not obtained — all that despite the fact that mining is continuing without the permits, the Conservancy contends. In response to OSM, Enviro requested another delay of the decision, and OSM officials in Pittsburgh now say they will not

reach a final decision until 1983.

Meanwhile, the Conservancy has asked a federal judge to enjoin further mining by Enviro until OSM makes a decision on the permit applications. In addition, the judge is being asked to order disclosure of the Enviro No. 3 report. The Conservancy has alleged that OSM has deliberately "dragged out the permit decisions and turned its back on

Enviro's violations of the 1977 Surface Mining Law."

Enviro was accused of state water pollution violations during 1981 and, in a plea-bargained arrangement with a county prosecutor and state officials, paid thousands of dollars in fines and entered a plea of "no contest" to the charges levied against it.

Meanwhile, Enviro has continued to expand its activities on the

Shavers Fork, a high-altitude river that flows through the heart of West Virginia's black-bear breeding grounds. Enviro now operates four mines, a tippie and coal storage area, conveyors and has cut a new haul road into a fifth mine site on the Suter Run tributary of Shavers Fork. (All photos by Bard Montgomery.)

# Honors

(Continued from page 1)

for alleged damaging statements on the potential impacts of mining operations. Aided by the National Wildlife Federation, he successfully defended his right to speak out on an important public and environmental issue."

Gulf assumed sponsorship of the national awards program last fall from American motors, which has instituted the program in 1953. Since its beginning, the program has honored 498 individuals for their conservation work. Nationally-known outdoor writer Ed Zern has been program director from its inception and continues in that capacity for Gulf. Judges in the selection process included the president of the Public Lands Institute, an honorary president of the World Wildlife Fund, a California-based conservation consultant, a retired California professor of zoology, the president of the Wildlife Management Institute, the director of New York's Natural Area Council as well as the chairwoman of environmental quality for the League of Women Voters.

Others in addition to Webb who were recognized for their contributions included:

**GEOFFREY BARNARD** of Minneapolis, Minnesota, special representative of the Nature Conservancy in Costa Rica. After building a successful record with the Nature Conservancy in the Midwest and Minnesota, Mr. Barnard has undertaken a special project in Costa Rica to develop a Nature Conservancy program. He brings to his assignment the past achievement of securing approximately 30,000 acres of native grasslands in five Midwestern states for the Conservancy. These areas include the two largest protected prairie ecosystems in the United States. He spearheaded the effort to get the state of Minnesota to adopt the Conservancy's Heritage Program to protect unique natural areas and involved students in conservation through the establishment of an intern program for management of natural preserves.

**RAY M. CULTER** of Falls Church, Virginia, trade lands director for the Nature Conservancy. Mr. Culter spent almost a decade organizing and building a preserve stewardship program for the Nature Conservancy. He forged an effective group of staff and volunteers to manage more than 700 Nature Conservancy preserves totalling one million acres and located in virtually every state. Among his many accomplishments are producing a management plan for the Virginia Coast Reserve and actively protecting the Great Dismal Swamp. Prior to joining the Nature Conservancy he helped organize Little Miami, Inc., to preserve the Little Miami River in Ohio as a wild and scenic area.

**ROBERT L. HUNT** of Waupaca, Wisconsin, leader of the cold water research group, Wisconsin Department of Natural Resources. Mr. Hunt is one of the foremost researchers on trout, having spent more than 20 years in active research and habitat management. His dedication to trout conservation has produced management guidelines for trout habitat improvement that have won national recognition in the field. His initial research on population dynamics and evaluation of angling regulations for wild brook trout was a pioneering effort in Wisconsin. He has authored more than 20 technical publications on the species and its habitat enhancement.

**HENRY P. LITTLE** of Kailua, Hawaii, special representative of the Nature Conservancy. Mr. Little is working to protect the last remaining habitat for native forest birds in Hawaii. The lands he seeks to secure for the Nature Conservancy provide habitat for all 23 endangered species of Hawaiian forest birds. He has acquired a conservation easement to a major tract on Molokai and organized a Board of Trustees of prominent Hawaiian scientists and conservationists. Prior to going to Hawaii, he served as Western Field Director for the Conservancy, leading a successful fight to protect Santa Cruz Island in California, 4,400 acres of the Big Sur coast, Silver Creek in Idaho (Ernest Hemingway's favorite fly fishing stream) and the McCloud River in California.

**ROBERT D. NELSON** of Alexandria, Virginia, deputy staff director, fish and wildlife management, United States Forest Service. This federal career professional demonstrated exceptional leadership in developing a fisheries and wildlife habitat management program for the Forest Service's Pacific Southwest Region, a task which won him appointment as the first deputy director for fish and wildlife for the agency. Among his many accomplishments are programs for threatened and endangered species, deer habitat management, wetland development management and improved relationships between state and federal agencies.

**DAVID R. PATTON** of Tempe, Arizona, project leader, Forestry Sciences Laboratory, U. S. Forest Service at Arizona State University. Dr. Patton serves as project leader for the largest Forest Service wildlife habitat research unit in America. He is best known for his research on Abert squirrels, recognized as one of the more reliable habitat models designed for wildlife. He developed **RUN WILD**, a computer system of interactive files for storing and retrieving habitat information for 745 vertebrate species in the Southwest. This system is being adapted and studied by wildlife biologists throughout the country. As a wildlife

biologist, Dr. Patton has written numerous technical articles on wildlife in the Southwest.

**ROLF O. PETERSON** of Houghton, Michigan, assistant professor of biology, Michigan Technological University. Dr. Peterson has conducted extensive research on wolf-prey relationships, revealing the complex wildlife community relationships in Isle Royale National Park. At the request of the U. S. Fish and Wildlife Service, he also conducted a three-year study of wolves in relation to wildlife in the Kenai National Moose Range in Alaska. During 11 years of active research, Dr. Peterson has built an outstanding record of predator-prey interaction that has provided valuable information for both government and academic researchers.

**ERNEST D. SENECA** of Wake Forest, North Carolina, professor of botany, North Carolina State University. Dr. Seneca's coastal ecology and dune stabilization efforts have provided useful research used around the world, including the coast of France, where he aided in restoring salt marshes damaged in the AMOCO CADIZ oil spill. He is a pioneer in devising cost-effective techniques for stabilizing and building up sand dunes on vulnerable barrier island coasts in the Carolinas. As an educator, he enlightens his students with an appreciation of coastal and community ecology.

**WENDELL G. SWANK** of College Station, Texas, professor, department of wildlife and fisheries science, Texas A & M University. Dr. Swank has built a distinguished career in wildlife management and academia. Currently an active educator, he has also served as head of the Arizona Division of Wildlife and Fisheries Research, a wildlife advisor with the East African Agriculture and Forestry Organization, manager for the Kenya Wildlife Management Project and president of the Wildlife Society. As a Fulbright scholar, he was among the first to call attention to the wildlife problems in Uganda's national parks.

**MILTON W. WELLER** of St. Paul, Minnesota, professor and head, department of entomology, fisheries and wildlife, University of Minnesota. Dr. Weller has dedicated years of research to the study of prairie marshes, producing invaluable understanding of natural basin prairie wetlands. As an educator, he has inspired numerous students at Iowa State and the University of Minnesota to go on to their own distinguished careers in conservation, education and wildlife management. Dr. Weller is considered one of the top waterfowl biologists in the world and actively supports numerous conservation organizations.

**ALICE (AJAX) EASTMAN** of

Baltimore, Maryland, citizen conservation leader. Mrs. Eastman is one of Maryland's foremost conservation advocates, having served the Maryland Conservation Council in numerous leadership roles, including president. She has worked tirelessly in securing legislation to protect such scenic rivers as the Youghiogheny, preserve agricultural lands and establish the Maryland - Northern Virginia Chesapeake Bay Bi-State Advisory Commission. She is the intellectual force behind the **Conservation Report**, a weekly newsletter published when the Maryland General Assembly is in session.

**JOHN FOGLE** of East Corinth, Maine, a dairy farmer. His Stonyvale Farm serves as a model of good husbandry and sound conservation practices throughout the state through a voluntary program to combat erosion. His creation of the SNAP (Study of Nonpoint Agricultural Pollution) Report established Maine as the first state to pinpoint the location and amount of erosion on all cropland fields of 10 acres or more.

**R. PHILIP HANES, JR.**, of Winston-Salem, North Carolina, chairman of Ampersand, Inc. This Tarheel industrialist has compiled an enviable record during the past two decades of enhancing the North Carolina environment through active involvement in and funding of numerous projects. Mr. Hanes has committed corporate funds to acquire valuable park land and major tracts for the Appalachian Trail as well as recruit members for conservation organizations. He provided leadership for the nature Conservancy drive to save the Outer Banks.

**RICHARD M. HOLLIER, JR.**, of Opelousas, Louisiana, an active farmer and educator. For more than three decades, Mr. Hollier has been dedicated to conservation causes, including vigorous information programs to advance soil and water conservation. His 1,400 acre rice, bean and timber farm is a model of forest stand improvement, crop rotation, erosion control, irrigation water management and grassed waterways. He serves as president of the Louisiana Association of Conservation Districts and in that role makes numerous personal and television appearances on behalf of sound conservation of renewable resources.

**BENETT KESSLER**, of Independence, California, a news reporter. Ms. Kessler is a dedicated newswoman in eastern California whose diligent coverage of the Owens Valley revealed unwarranted exploitation of water resources. Her fearless reporting on the issue on radio and for the Eastern Sierra News Service has led to public participation in deciding the use of valuable water resources. Despite intimidation tactics that cost her a job at one radio

station, Ms. Kessler continues to keep the public informed about the environ-

ment in the Owens Valley. **MARY KITTEL** of Fort Worth, Texas, citizen conservation leader. This dedicated conservationist has actively worked to preserve thousands of acres of precious land through the National Land Trust which she has chaired for more than six years. In addition, Mrs. Kittel has prepared conservation manuals for use in elementary and secondary schools and researched a textbook on conservation education. She has served on the Texas Air Control Board Citizens Council and is a past president of the National Council of State Garden Clubs.

**KENNETH AND HELEN MORRISON** of Babson Park, Florida, a conservation director and an educator. This couple has promoted conservation and environmental protection throughout the Sunshine State, helping to secure natural areas and promote environmental education. They were instrumental in aiding the Nature Conservancy to secure 3,000 acres of Tiger Creek, helped oppose the Cross-Florida Barge Canal and helped reform Florida's wetlands practices. Mr. Morrison manages the Bok Singing Tower and Mountain Lake Sanctuary at Lake Wales, a facility renown for its lovely gardens. Mrs. Morrison teaches nature studies to young and old alike.

**EVA PATTEN** of Tempe, Arizona, principal in The Forum, a communications firm. Mrs. Patten has worked with the federal Bureau of Land Management (on behalf of the League of Women Voters) to improve the agency's public involvement program in five western states. Active in land use issues for a number of years, she has planned public meetings on hazardous waste issues and examined problems relating to flood control and regulatory storage of waters in central Arizona. Mrs. Patten chaired the Governor's Commission on Arizona Environment and advised the Arizona Department of Health Services on public meetings on the siting of a hazardous waste facility for the state.

**ARTHUR (SKIPPER) TONSMEIRE** of Fairhope, Alabama, owner of Tonsmeire Construction Company. Mr. Tonsmeire waged a successful campaign to protect the lower part of Mobile Bay and the Fort Morgan Peninsula from development. This effort resulted in the creation of the Bon Secour Wildlife Refuge which will encompass 10,000 acres when completed. He also has assisted the Nature Conservancy in implementing the Rivers of the Deep South program, which has preserved valuable lands and waters for multiple use by sportsmen and wildlife watchers alike.

## THE HIGHLANDS

## Goosey, Goosey Gander ...

Geese are gagging in the mountains.

BY WALTER A LESSER

The thrilling sight and sound of Canada geese has been more common in West Virginia since the goose program was expanded in 1976. Prior to 1976, two populations were started—one on the McClintic Public Hunting and Fishing area, Mason County and the other in Canaan Valley, Tucker County.

In 1976 surplus geese became available for the asking from northeastern states (primarily New York, New Jersey and Connecticut). West Virginia's potential for geese is limited because over 80% of our land is forested. However, game biologists felt that we have some potential for establishment of self-sustaining Canada goose flocks in our more fertile agricultural valleys. Suitable habitat was identified along drainages and tributaries of the Ohio, Kanawha, South Branch of the Potomac, Tygart Valley, Greenbrier and New Rivers. Habitat was also found near some large impoundments of the State.

After learning about the availability of surplus geese, Wildlife Resources Division personnel geared-up for transporting the birds with 2-ton truck and trailer modified with high stake sides to hold wooden turkey crates. This rig is capable of hauling up to 600 geese in one trip.

Geese molt only once a year and are flightless for a period of a few weeks in late June and early July. During this period the birds are easily captured by drive-trapping. The surplus geese are trapped by the U.S. Fish and Wildlife Service and game management personnel from the States of New York, New Jersey and Connecticut. The geese are held in large enclosures until our truck and trailer arrives. The birds are then loaded and immediately brought to the Mountain State for release in their new habitat. Transporting is done at night to avoid mortality due to overheating. Fresh water is continually available to the birds during transportation. Upon arrival at the release site, the geese are banded and released.

A total of 4,124 Canada geese have been transplanted under this program since 1976. The only cost to West Virginia was that of transportation and handling. Discounting the initial truck modifications and paper work, the geese were brought to West Virginia at an average cost of \$3.50 per bird.

The main difficulty with mobile Canadas is getting them to stay in their new habitat, and then having them return after the first migration. The tendency is for some, at least, to return to their original homes and abandon their new habitat. This is a trait that applies mostly to the adult birds. Young birds consider home to be where they learned to fly. Although some birds return to their original range, enough geese remain to provide adequate reproduction and establish populations. Only about one percent of the geese transported each year have returned to where they captured. Total annual mortality of the stocked birds has reached a high of 14% but averages about 4% per year.

Reproduction from introduced geese has been encouraging. Using the 1976 South Branch Valley

transplant as an example, 4 broods were confirmed in 1977, 10 in 1978 and 20 to 25 each year since. We also found that production averaged over 4 goslings per brood. Good reproduction has been confirmed elsewhere in the State, particularly along the Ohio and Kanawha River valleys. Along the Upper Ohio River (Parkersburg area), about 25 broods have been sighted each breeding season since the original release.

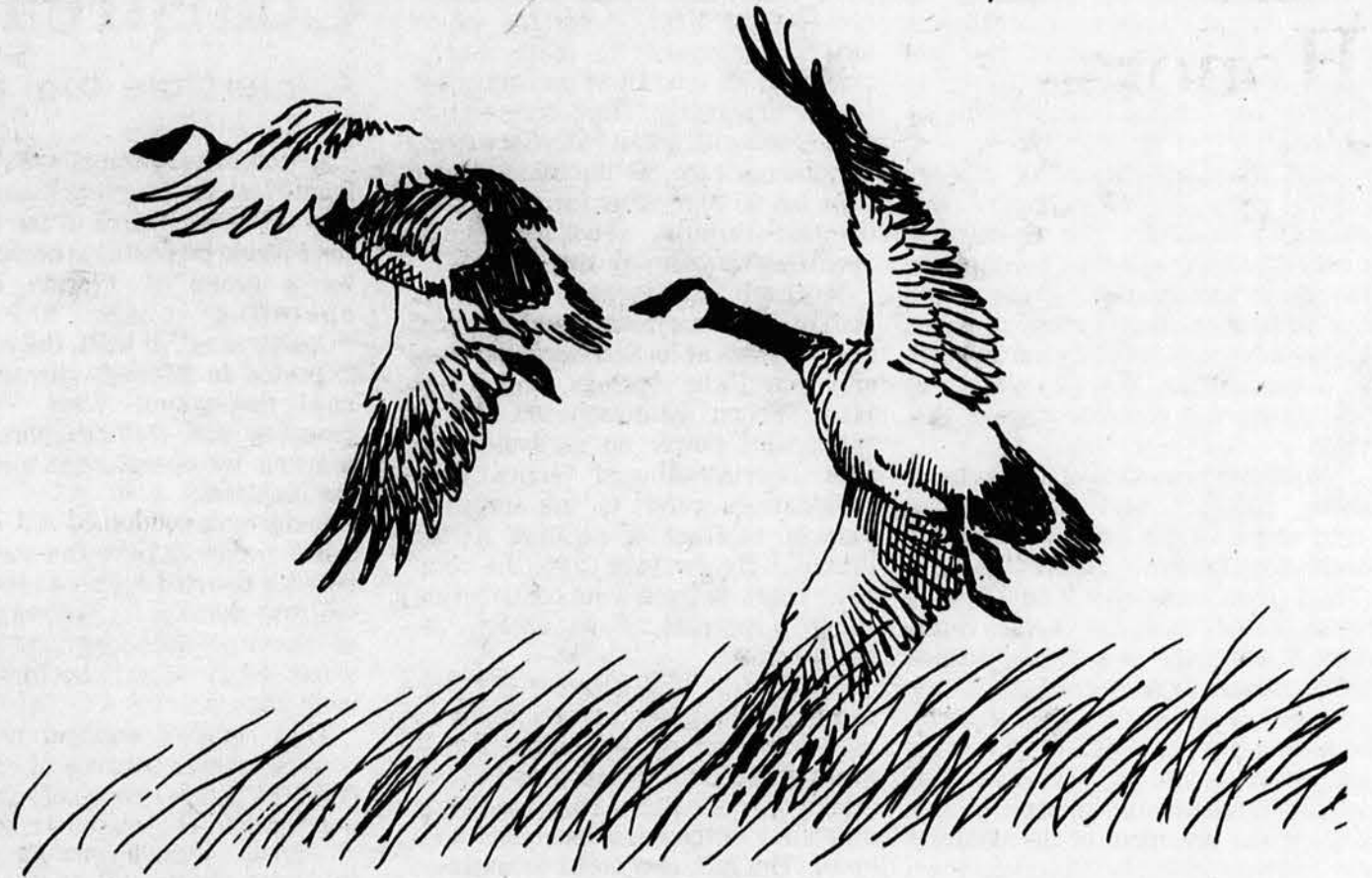
Plastic neck collars placed on geese hatched in the South Branch Valley have revealed some interchange of birds with the Alexandria, Virginia area. Some of our birds (non-breeders) spend at least one summer there, and some Virginia birds have been recovered in our South Branch banding operations. It will be interesting to see what these birds do in future years.

Evaluation of this program is still continuing, but indications are that: (1) a satisfactory number of geese are staying in the vicinity of the release sites, (2) sufficient reproduction is occurring in most instances to establish a viable population, and (3) few birds are returning to their state of origin.

Many landowners have shown enthusiasm by improving nesting habitat for geese on their properties. Nesting islands are easily incor-

porated into farm pond construction and artificial nesting structures can be placed in established ponds. The ad-

dition of Canada geese to our State has been welcomed by waterfowl hunters and birdwatchers alike. Plans are to continue this program as long as suitable unoccupied habitat and a source of birds exists.



## IN THE FOREST

## Stress

Forest researchers discover a 200-million-year-old idea.

When a tree is injured, it doesn't heal.

Wait a minute, you say. What happens to all the injured trees? Certainly they don't die. Many old trees bear the scars of numerous run-ins with man and nature.

That's true, but still, trees don't heal. They compartmentalize instead. Come now, you say, aren't you just playing with words?

Well, if you use heal to mean "get well and keep on living," yes, but if you use it in its true sense, to mean "repair" or replace damaged parts," no. In that case, the difference between compartmentalizing and healing for the tree is the difference between living and dying.

You see, trees aren't physically able to heal, to repair the damage. That's partly because of their cellular structure. Cells in a tree are like tiny building blocks, each locked into place and interconnected with those around it. Injure one and the damage would spread like wildfire.

If it weren't for compartmentalization. Thanks to this process the tree can wall off injury and prevent it from spreading out of control. Mature trees have hundreds or even thousands of injured and infected areas closed off in discrete compartments.

Trees are more than 200 million years old, but the idea of compartmentalization is a product of the last 25 years of research. The whole concept of what a tree is has changed

recently, and along with it the idea of how a tree grows, reacts to injury, and recovers or dies.

A tree is, in a sense, many plants growing one on top of the other in cone fashion. Each year some parts are shed, including leaves or needles, reproductive organs, and fine absorptive roots. The new tree grows over the old, woody frame.

If compartmentalization works so well, you might ask, why do some trees die? Many of the reasons can be summed up in one word: stress.

Take Dutch elm disease, for example. Scientists now know that trees only succumb when their energy supplies are so depleted that they can't compartmentalize effectively. The weakened tree is then easy prey.

The same is true of gypsy moth-infested trees. The caterpillar itself doesn't kill. But it creates a strain on the tree's energy and weakens its natural defense system. Compartmentalization is the core of that system.

Once we know why trees die, we can better know how to treat them. The discovery of compartmentalization changed many of our ideas about tree care. We now know that two wound dressings do not stop decay or aid healing. That the swollen collar at the base of a branch should not be injured or removed. That frost does not cause "frost cracks." And on and on.

Trees need their own brand of medicine, not one adapted from con-

cepts of animal or human care. If we continue to try to "heal" trees, little progress will come. We should treat trees like trees. And realize that, for them, survival means compartmentalizing.

## AROUND THE STATE

## Fishery

The W. Va. Council of Trout Unlimited slates a series of summertime events.

A series of activities stretching across the summer and into the fall have been planned by the Kanawha Valley Chapter of Trout Unlimited, including a fly-fishing school as well as several stream stockings.

The W.Va. Council of Trout Unlimited will hold its fourth annual fly-fishing school June 18-20 at Camp Pioneer near Elkins. There, students will receive instruction in basic fly-casting, fly selection, knot- and leader-tying, basic aquatic entomology and the selection of proper equipment. Also planned are seminars on fly-fishing lore, fly-tying and tackle-tinkering and a film on conservation of the trout-fishing resource.



Set for July 31 have been two stockings, one of the Williams River and the other of the South Fork of the Cranberry. September will see three more stockings, including one of the Laurel Fork as well as one each in both Fayette and Nicholas counties. The county stockings are on Sept. 11 and 25 and are being coordinated by (respectively) John McCoy and Clayton O'Dell, while the Laurel Fork stocking is being coordinated by Frank Anderson.

Rounding out the fall will be a Boy Scout hunting and fishing day being scheduled by Max Robertson for Sept. 22.

Yet to be announced is a stream improvement project for White's Run. Coordinating that is Pat Harris.

NEW YORK

# Winds of Change

The utility industry takes a serious look at an alternate energy source.



**EDITOR'S NOTE:** The following article is reprinted from the "Technology Review" section of a recent edition of "Electric Perspectives," a quadriennial publication of the Edison Electric Institute.

Continuing advances in federal and private development programs indicate that wind power generation is reinforcing its position as the first solar electric technology likely to emerge for serious consideration by utilities.

Both the Department of Energy (DOE) and the Electric Power Research Institute cite established understanding of the technology, favorable economic projections, and the dedication this spring of three highly advanced MOD-2 wind turbines at Goodnoe Hills, WA, as evidence of the program's continued great promise.

"Wind has been kind of a surprise to many people," said Dan Ancona, chief of the DOE's large wind energy technology branch. "Back in the early '70s, I think many saw it as a kind of whim. I don't think any utilities really took it seriously. But today, I think people have discovered that the resource is better than they thought, and that the hardware to harvest it has come a long way. We have also been able to show that we can, in fact, live with the technical problems associated with interfacing wind systems with utilities."

Electric utilities' interest clearly has increased, with the number of companies actively involved in wind energy—in everything from feasibility studies to full scale experiments with large turbines—up over 70 percent in the latest EPRI survey. Today, according to EPRI, at least 91 utilities across the country are involved in some way in wind, conducting at least 152 projects. This represents more growth than for any other solar

electric option.

Leaders in this move include Hawaiian Electric Co. Inc., Southern California Edison, and Pacific Gas and Electric Co.

Hawaiian Electric is host to an early-generation DOE/National Aeronautics and Space Administration (NASA) MOD-OA turbine, which has now operated for more than a year with an overall 50 percent plant factor. In addition, it has entered into a contract with a San Francisco firm, Windfarms Ltd., to purchase power from an 80 MW wind farm of 20 individual turbines scheduled to be operating on Oahu by 1985.

Southern California Edison is testing both horizontal and vertical axis turbines at its San Geronio Pass site near Palm Springs, and it has plans for an estimated 360 MW of rated wind power on its system by 1990. (Horizontal and vertical axis designations refer to the turbines' axis of rotation in relation to the ground.) By the year 2000, the company hopes to have wind contributing up to 3 percent of its energy requirements.

Pacific Gas and Electric has purchased a MOD-2 and entered into an agreement to buy back power from a proposed 350 MW Windfarms Ltd. installation near San Francisco. First machines at the wind farm are to go up by late 1983, and the site should be fully operational by 1989. A contract has also been signed with U.S. Windpower Inc. of Burlington, MA, to purchase up to 30 MW of power from a separate wind farm in the San Francisco area. Additional projects are also under discussion by the company, including purchase and installation of machines of its own to supplement the MOD-2.

Machine developers for these and other wind projects across the country include Boeing Engineering &

Construction, the Aluminum Company of America, the Hamilton Standard Division of United Technologies Corp., Bendix Wind Power Products

(Please turn to page 2)

## WEST VIRGINIA

# Coalstream

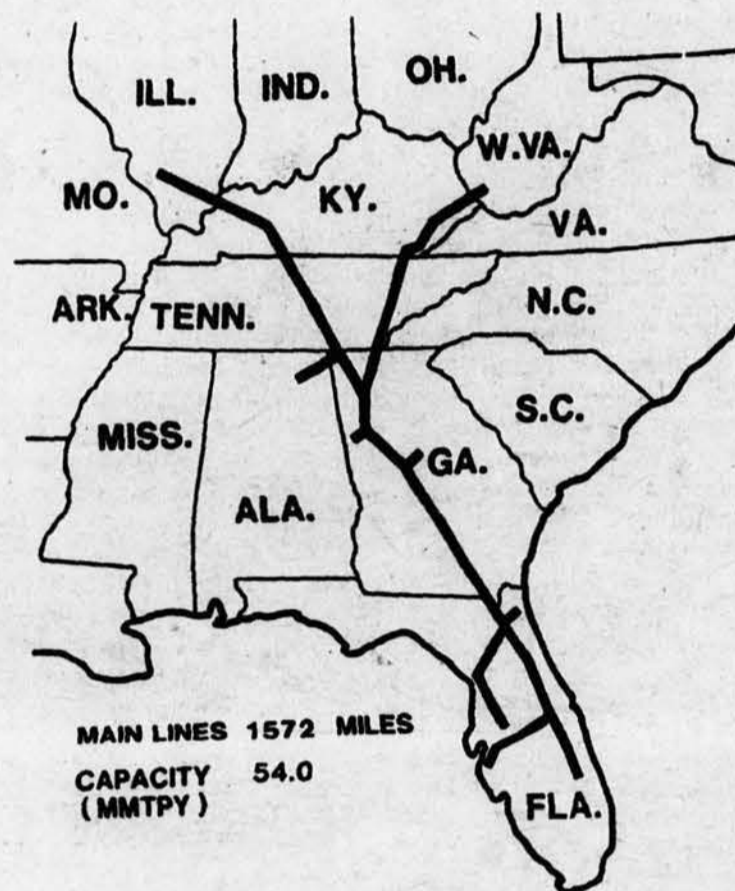
A interstate coal pipeline may boost demand for the highlands' coal.

A coal slurry pipeline stretching from West Virginia and Illinois all the way down two-thirds of the length of the Florida peninsula is being planned by a group of Florida investors operating under the name "Coalstream." If built, the pipeline is expected to intensify the search for coal throughout West Virginia's reserves and leaving more nearby markets for operators in and around the highlands.

Congressional action is expected this summer to pave the way for the pipeline firm to be granted the right of eminent domain for the construction of the 1,500-mile-long pipeline that would carry 55 million tons of coal each year.

That right of eminent domain is needed largely because of opposition from the nation's railroads whose property would be crossed an estimated 170 times, according to an engineer for Coalstream. He indicated the railroads are opposed to the project because of the competition for freight.

As currently planned, the \$3 billion pipeline would be used as a conduit for pulverized coal mixed with 40 cubic feet of water per second from the Ohio River's reserves of some 77,000 cubic feet per second. After arriving in Florida, the slurry would be dried into "coal cakes," then delivered by rail or barge to power plants to be burned.



The proposed route of the Coalstream pipeline through the Southeast.

## WASHINGTON

# 'Specter'

Republicans are warned about environmentalism.

# Republican Study Committee



A document prepared for a member of the Republican Study Committee of the U.S. House of Representatives early this year outlines what it terms the "specter of environmentalism." That specter, the document asserts, "threatens to undermine" the nation's "natural resource and economic development."

The document notes with veiled chagrin that "environmentalists are overwhelmingly Democrats and predominantly liberal" and that the environmental movement now "transcends the simple desire to protect the environment" and includes a "new revolutionary scheme": "deep ecology," a scheme espoused by "coercive utopians" with a "hidden

liberal agenda."

Prepared by Tim Peckinpaugh, apparently a staffer of the study committee, the document is clearly not intended as a spoof but rather as a serious consideration deserving not just Congressional note but action as well. The paper, which includes extensive footnotes, concludes that a "specter of environmentalism haunts America by threatening to inhibit natural resource development and economic growth. Failure to recognize this and to respond accordingly compromises the natural resource development objectives supported by the majority of the American public."

Substantial sections of the docu-

ment are given over to supporting that last assertion: that the majority of Americans are not environmentally oriented. In one section entitled "The Minority Status of Environmentalism," Peckinpaugh asserts that "environmental groups represent only a minority fringe of the American public" — that statement coming fast on the heels of references to surveys which he says indicate that "only 13 percent" of the general public regard themselves as active in the environmental movement.

The paper also attempts to impugn the motives of those 13 percent who are active, charging that they are "fundamentally self-interested" and "tend to be members of the affluent,

upper-middle class termed the leisure class." Therefore, they are "largely insulated from the consequences of stagnate (sic) resource development and economic growth... it is not surprising," the document states "that minorities and the poor tend to be hostile toward environmental reforms."

The paper goes on to assert a number of other things, notably that environmental leaders are at odds with the "grass-root" members of environmental groups they represent — this despite the fact (which Peckinpaugh himself points out) that membership in the nation's major environmental groups is growing by leaps and bounds; that environmen-

talists "manipulate" the media and that members of the "media elite" in fact collude with environmentalists to present a distorted view of the world; that environmentalists manipulate the American judicial system as well, specifically by bringing court actions in jurisdictions believed likely to support their contentions; that environmentalists are "infiltrating," the nation's colleges and universities, in an effort to promote "environmental concerns under the guise of... respectable" institutions; and that environmentalists and their organizations have received federal grants as well as tax deductions.